CLAIMS

1. A communication apparatus comprising:

a propagation path condition estimation section that estimates speed of a change in a propagation path condition;

a communication quality estimation section that changes a method of estimating the communication quality based on the speed of the change in the propagation path condition and estimates communication quality;

a transmission section that transmits the communication quality estimated in the communication quality estimation section to a communicating party;

a reception section that receives data modulated in a modulation scheme determined based on the communication quality by the communicating party; and

a demodulation section that demodulates the data.

2. A communication apparatus comprising:

a propagation path condition estimation section that estimates speed of a change in a propagation path condition;

a communication quality estimation section that changes an estimation method based on the speed of the change in the propagation path condition and estimates communication quality;

a threshold setting section that sets a criterion to select a modulation scheme for use in communication

with a communicating party from a plurality of modulation schemes based on information of the speed of the change in the propagation path condition;

a modulation scheme selection section that selects a modulation scheme from the communication quality by the criterion set by the threshold setting section; and

a transmission section that transmits information indicating the selected modulation scheme to the communicating party.

3. The communication apparatus according to claim 1, wherein the communication quality estimation section makes a length of a term for averaging the communication quality when the change in propagation path condition is fast longer than the length of the term for averaging the communication quality when the change in propagation path condition is slow, and averages the information of the communication quality to estimate.

4. The communication apparatus according to claim 1, wherein the communication quality estimation section estimates the communication quality by a plurality of estimation methods, and selects the communication quality estimated by one of the plurality of estimation methods based on the speed of the change in the propagation path condition.

5. The communication apparatus according to claim 4, wherein the communication quality estimation section estimates the communication quality by a plurality of estimation methods, and an estimation method to be selected when the speed of the change in the propagation path condition is faster than a predetermined threshold, estimates a longer length of the term than in an estimation method to be selected when the speed of the change in the propagation path condition is slower than the predetermined threshold.

6. The communication apparatus according to claim 5, wherein the communication quality estimation section estimates the communication quality by a plurality of estimation methods, and estimates a frame error rate when the speed of the change in the propagation path condition is faster than a predetermined threshold, while estimating a received power to noise ratio when the speed of the change in the propagation path condition is slower than the predetermined threshold.

7. A communication apparatus comprising:

a reception section that receives information of speed of a change in a propagation path condition estimated by a communicating party;

a threshold setting section that sets a criterion to select a modulation scheme of a signal to be transmitted

to the communicating party from a plurality of modulation schemes based on the information of the speed of the change in the propagation path condition;

a modulation scheme selection section that selects a modulation scheme based on the criterion set by the threshold setting section and reception quality of a signal received in the communicating party;

an adaptive modulation section that modulates data in the modulation scheme selected in the modulation scheme selection section; and

a transmission section that transmits the modulated data by a radio signal.

8. The communication apparatus according to claim 2, wherein the threshold setting section sets the criterion so that the modulation scheme is harder to be switched in a threshold when the speed of the change in the propagation path condition is fast than in a threshold when the speed of the change in the propagation path condition is slow.

9. The communication apparatus according to claim 1, wherein the propagation path estimation section divides the received signal into predetermined data sizes, detects fluctuation in reception quality on a basis of divided data, and thereby estimates the speed of the change in the propagation path condition.

10. A communication method, wherein:

a receiving side estimates speed of a change in a propagation path condition, changes a method of estimating communication quality based on the speed of the change in the propagation path condition, estimates communication quality, and transmits information of the estimated communication quality and information of the speed of the change in the propagation path condition to a transmitting side;

the transmitting side receives the information of the communication quality and the information of the speed of the change in the propagation path condition transmitted from the receiving side, sets a criterion to select a modulation scheme of a signal to be transmitted to the receiving side from a plurality of modulation schemes based on the information of the speed of the change in the propagation path condition, selects the modulation scheme based on the set criterion and the communication quality of a signal received at the receiving side, modulates data in the selected modulation scheme, and transmits the modulated data by a radio signal; and

the receiving side receives the data modulated in the modulation scheme determined by the transmitting side, and demodulates the data.

11. A communication method, wherein:

a receiving side estimates speed of a change in a

propagation path condition, estimates communication quality, changing an estimation method based on the speed of the change in the propagation path condition, sets a criterion to select a modulation scheme of a signal for a transmitting side to be transmitted to the receiving side from a plurality of modulation schemes based on the speed of the change in the propagation path condition, selects a modulation scheme from the communication quality of a received signal by the set criterion, and transmits information indicating the selected modulation scheme to the transmitting side;

the transmitting side receives the information indicating the modulation scheme selected at the receiving side, modulates data in the selected modulation scheme, and transmits the modulated data by a radio signal; and

the receiving side receives the data modulated by the transmitting side in the selected modulation scheme, and demodulates the data.